

What is claimed is:

1. A contact lens for use on an eye, the lens comprising:
a lens body having a posterior face, an optical zone, a peripheral portion and a peripheral edge;
a plurality of radially extending microchannels defined in the posterior face of the lens body, the microchannels sized and adapted to promote effective tear fluid exchange between an exposed surface of the eye and a surface of the eye covered by the lens body without substantially interfering with optical zone function.
2. The lens of claim 1 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.
3. The lens of claim 1 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels
4. The lens of claim 1 wherein the plurality of microchannels are substantially equidistantly spaced apart and are sized and arranged to promote formation of a substantially continuous tear film between a lens-eye interface.
5. The lens of claim 1 wherein the plurality of microchannels comprise about 5 to about 200 microchannels.
6. The lens of claim 1 wherein the plurality of microchannels comprise about 10 to about 100

microchannels.

7. The lens of claim 1 wherein the plurality of microchannels are equidistantly spaced apart.

8. The lens of claim 1 wherein the plurality of microchannels comprise microchannels spaced apart by between about 5 degrees and about 30 degrees.

9. The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a width of less than about 5 degrees.

10. The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a width in a range of about 0.5 degrees to about 2 degrees.

11. The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a maximum width in a range of about 50 microns to about 500 microns.

12. The lens of claim 1 wherein the plurality of microchannels comprise about 10 to about 200 microchannels, each microchannel having a width of less than about 5 degrees and a depth of between about 0.1 microns and about 50 microns.

13. The lens of claim 1 wherein the microchannels have a maximum depth in a range of about 0.1% to about 90% of a thickness of the lens body.

14. The lens of claim 1 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

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15. The lens of claim 1 wherein the plurality of microchannels include first microchannels which are defined only in the peripheral portion and second microchannels which are defined at least partially in the optical zone.

16. The lens of claim 15 wherein the second microchannels are longer than the first microchannels.

17. The lens of claim 1 wherein the plurality of microchannels include a first set of microchannels and a second set of microchannels, and the first set and second set are in fluid communication with one another.

18. The contact lens of claim 17 wherein the plurality of microchannels further include a substantially annular microchannel defined between the first set and the second set.

19. A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face including a first annular portion, a second annular portion circumscribing the first annular portion, and a peripheral edge circumscribing the second annular portion;

a first set of microchannels defined within the first annular portion of the posterior face; and

a second set of microchannels defined within the second annular portion of the posterior face, wherein the first set and the second set are in fluid communication with one another.

20. The lens of claim 19 herein at least one of the first set of microchannels and the second set of

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21. The lens of claim 19 further comprising a substantially annular microchannel defined between the first set and the second set.

23. The lens of claim 19 wherein the lens body includes an optical zone and the first set of microchannels extend outward from an edge of the optical zone toward the peripheral edge.

25. A contact lens for use on an eye, the lens comprising:

a plurality of microchannels extending substantially along radii of the peripheral portion, the microchannels being sized and adapted to promote effective tear fluid exchange between an exposed surface of the eye and a surface of the eye covered by the lens body without substantially interfering with optical zone function.

26. The lens of claim 25 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.

27. The lens of claim 25 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels.

28. The lens of claim 25 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels toward a center of the optical zone.

29. The lens of claim 25 wherein the plurality of microchannels comprise equidistantly spaced apart microchannels, each microchannel having a width of less than about 5 degrees and a maximum depth in a range of about 0.1 microns to about 50 microns.

30. The lens of claim 25 wherein the plurality of microchannels comprise about 5 to about 200 microchannels.

31. The lens of claim 25 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

32. A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face and a peripheral edge;

a plurality of microchannels defined in the posterior face of the lens body, the plurality of microchannels being sized and arranged to promote formation of a substantially continuous, freely flowing tear film between a lens-eye interface when the lens is worn on the eye.

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33. The lens of claim 32 wherein the plurality of microchannels comprise radially extending microchannels.

34. The lens of claim 32 wherein the plurality of microchannels comprise microchannels spaced apart by between about 5 degrees and about 30 degrees.

35. The lens of claim 32 wherein the plurality of microchannels comprises equidistantly spaced apart microchannels, each microchannel having a width of less than about 5 degrees and a depth of between about 0.1 microns and about 50 microns.

36. The lens of claim 32 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.

37. The lens of claim 32 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels.

38. The lens of claim 32 wherein the plurality of microchannels comprise about 10 to about 100 microchannels.

39. The lens of claim 32 wherein the plurality of microchannels comprise microchannels having a maximum width in a range of about 50 microns to about 500 microns.

40. The lens of claim 32 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

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